

New bioengineering technique makes bacteria produce chemicals quicker and more efficiently

[Genetically engineered bacteria already produce some products of commercial interest](#) or biomedical importance, such as [insulin](#). And coaxing the [organisms](#) to do so can be done with a cleaner setup and produce fewer environmentally problematic byproducts than other production methods. But the bacterial approach has stayed limited to just a few products, due to inefficiencies.

Now a research team at Harvard's Wyss Institute for Biologically Inspired Engineering says they've developed a system to get microbes to produce chemicals dramatically faster and more efficiently. The technique uses Darwinian principles over multiple iterations, what they call rounds of evolution. The study is in the *Proceedings of the National Academy of Sciences*. [Srivatsan Raman et al, [Evolution-guided optimization of biosynthetic pathways](#)]

The researchers induced mutations in specific genes related to the expression of the desired molecule. They then tweaked the bacteria so that genes for antibiotic resistance only become active when the cells make some of the sought-after product. With antibiotics present, cells die that do not produce enough of the product. Because those cells also do not have the life-saving resistance to the antibiotics. The surviving cells, however, show promise.

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